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     (FILE 'HOME' ENTERED AT 16:44:33 ON 07 OCT 2009)

     FILE 'LREGISTRY' ENTERED AT 16:45:08 ON 07 OCT 2009
                D SAV

     FILE 'HCAPLUS' ENTERED AT 16:45:53 ON 07 OCT 2009
                ACT HAI637B/A
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L1   (       538)SEA SPE=ON  ABB=ON  PLU=ON  PT (L) CR (L) NI/ELS
L2   (       313)SEA SPE=ON  ABB=ON  PLU=ON  L1 (L) 3-6/ELC.SUB
L3   (   1699944)SEA SPE=ON  ABB=ON  PLU=ON  CAT# OR CATAL?
L4            15 SEA SPE=ON  ABB=ON  PLU=ON  L2 AND L3
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                  D L4 9-12 HITSTR


     FILE HOME

     FILE LREGISTRY
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     CAS INFORMATION USE POLICIES, ENTER HELP USAGETERMS FOR DETAILS.

     FILE HCAPLUS

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     USPTO MANUAL OF CLASSIFICATIONS THESAURUS ISSUE DATE:  Aug 2009

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     reclassification data for the third quarter of 2009.

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This file contains CAS Registry Numbers for easy and accurate substance identification.

=> d l4 1-15 bib abs hitstr hitind

L4 ANSWER 1 OF 15 HCAPLUS COPYRIGHT 2009 ACS on STN
AN 2009:275451 HCAPLUS Full-text
DN 150:482525
TI Effect of reduction conditions on electrocatalytic activity of a ternary PtNiCr/C catalyst for methanol electro-oxidation
AU Jeon, Min Ku; Zhang, Yuan; McGinn, Paul J.
CS Department of Chemical and Biomolecular Engineering, University of Notre Dame, Notre Dame, IN, 46556, USA
SO Electrochimica Acta (2009), 54(10), 2837-2842
CODEN: ELCAAV; ISSN: 0013-4686
PB Elsevier B.V.
DT Journal
LA English
AB The effect of reduction conditions on a Pt28Ni36Cr36/C catalyst was studied by using two different reduction methods: H reduction and NaBH4 reduction In H reduced catalysts, dissoln. of metallic Ni and Cr was observed during cyclic voltammetry (CV) tests, and a larger amount of Ni and Cr was dissolved when reduced at higher temps. For MeOH electrooxidn., the highest specific c.d. of 1.70 A m-2 at 600 s of the chronoamperometry tests was observed in the catalyst reduced at 300°, which was .apprx.24 times that of a Pt/C catalyst (0.0685 A m-2). In NaBH4 reduced catalysts , formation of an amorphous phase and a more Pt-rich surface was observed in x-ray diffraction and CV results, resp., with increasing amts. of NaBH4. When reduced by 50 times of the stoichiometric amount of NaBH4, the PtNiCr/C catalyst (PtNiCr-50t) showed a c.d. of 34.1 A gnoble metal -1, which was 81% higher than the 18.8 A gnoble metal -1 value of a PtRu/C catalyst at 600 s of the chronoamperometry tests. After 13 h of chronoamperometry testing, the activity of the PtNiCr-50t (15.0 A gnoble metal -1) was 110% higher than the PtRu/C catalyst (7.15 A gnoble metal -1). The PtNiCr/C catalyst shows promise as a Ru-free MeOH oxidation catalyst.
IT 1146619-29-5
RL: CAT (Catalyst use); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(effect of reduction conditions on electrocatalytic activity of a ternary PtNiCr/C catalyst for methanol electro-oxidation)
RN 1146619-29-5 HCAPLUS
CN Platinum alloy, base, Pt 58,Ni 22,Cr 20 (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Pt	58	7440-06-4
Ni	22	7440-02-0
Cr	20	7440-47-3

CC 72-2 (Electrochemistry)
Section cross-reference(s): 22
ST redn condition electrocatalytic activity carbon **catalyst** methanol electrooxidn; chromium nickel platinum alloy **catalyst** electrooxidn
IT Oxidation, electrochemical
X-ray diffraction
(effect of reduction conditions on electrocatalytic activity of a ternary PtNiCr/C **catalyst** for methanol electro-oxidation)
IT Oxidation **catalysts**
(electrochem.; effect of reduction conditions on electrocatalytic activity of a ternary PtNiCr/C **catalyst** for methanol electro-oxidation)
IT Reduction
(in **catalyst** preparation; effect of reduction conditions on electrocatalytic activity of a ternary PtNiCr/C **catalyst** for methanol electro-oxidation)
IT **1146619-29-5**
RL: CAT (Catalyst use); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(effect of reduction conditions on electrocatalytic activity of a ternary PtNiCr/C **catalyst** for methanol electro-oxidation)
IT 7440-02-0, Nickel, formation (nonpreparative) 7440-47-3, Chromium, formation (nonpreparative)
RL: FMU (Formation, unclassified); FORM (Formation, nonpreparative)
(effect of reduction conditions on electrocatalytic activity of a ternary PtNiCr/C **catalyst** for methanol electro-oxidation)
IT 67-56-1, Methanol, reactions
RL: PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)
(effect of reduction conditions on electrocatalytic activity of a ternary PtNiCr/C **catalyst** for methanol electro-oxidation)
IT 1333-74-0, Hydrogen, reactions 16940-66-2, Sodium hydroborate
RL: RCT (Reactant); RACT (Reactant or reagent)
(effect of reduction conditions on electrocatalytic activity of a ternary PtNiCr/C **catalyst** for methanol electro-oxidation)
OSC.G 2 THERE ARE 2 CAPLUS RECORDS THAT CITE THIS RECORD (2 CITINGS)
RE.CNT 38 THERE ARE 38 CITED REFERENCES AVAILABLE FOR THIS RECORD

ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 2 OF 15 HCAPLUS COPYRIGHT 2009 ACS on STN
AN 2008:1173722 HCAPLUS Full-text
DN 151:110338
TI Combinatorial screening of ternary Pt-Ni-Cr **catalysts** for methanol electro-oxidation
AU Cooper, James S.; Jeon, Min Ku; McGinn, Paul J.
CS Department of Chemical and Biomolecular Engineering, University of Notre Dame, Notre Dame, IN, 46556, USA
SO Electrochemistry Communications (2008), 10(10), 1545-1547
CODEN: ECCMF9; ISSN: 1388-2481
PB Elsevier B.V.
DT Journal
LA English
AB Methanol electro-oxidation activity of ternary Pt-Ni-Cr system was studied by using a combinatorial screening method. A Pt-Ni-Cr thin-film library was prepared by sputtering and quickly characterized by a multichannel multielectrode analyzer. Among the 63 different composition thin-film **catalysts**, Pt28Ni36Cr36 showed the highest methanol electro-oxidation activity and good stability. This new composition was also studied in its powder form by synthesizing and characterizing Pt28Ni36Cr36/C **catalyst**. In chronoamperometry testing, the Pt28Ni36Cr36/C **catalyst** exhibited "decay-free" behavior during 600 s operation by keeping its c.d. up to 97.1% of its peak c.d., while the current densities of Pt/C and Pt50Ru50/C **catalysts** decreased to 14.0% and 60.3% of their peak current densities, resp. At 600 s operation, c.d. of the Pt28Ni36Cr36/C **catalyst** was 23.8 A gnoble metal -1, while that of those of the Pt/C and Pt50Ru50/C **catalysts** were 2.74 and 18.8 A gnoble metal -1, resp.
IT 177835-27-7
RL: CAT (Catalyst use); USES (Uses)
(combinatorial screening of ternary Pt-Ni-Cr **catalysts** for methanol electro-oxidation in)
RN 177835-27-7 HCAPLUS
CN Platinum alloy, base, Pt,Cr,Ni (CA INDEX NAME)

Component	Component Registry Number
Pt	7440-06-4
Cr	7440-47-3
Ni	7440-02-0

IT 1146619-29-5
RL: CAT (Catalyst use); FMU (Formation, unclassified); PEP (Physical, engineering or chemical process); FORM (Formation,

nonpreparative); PROC (Process); USES (Uses)
(deposition of ternary Pt-Ni-Cr **catalysts** for methanol electro-oxidation on carbon support in solution containing)

RN 1146619-29-5 HCAPLUS
CN Platinum alloy, base, Pt 58,Ni 22,Cr 20 (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Pt	58	7440-06-4
Ni	22	7440-02-0
Cr	20	7440-47-3

CC 72-2 (Electrochemistry)
Section cross-reference(s): 23, 52, 56, 67, 78

IT X-ray diffraction
(by Pt, Pt-Ru and ternary Pt-Ni-Cr **catalysts** deposited on carbon support)

IT Oxidation, electrochemical
(combinatorial screening of ternary Pt-Ni-Cr **catalysts** for methanol electro-oxidation)

IT Fuel cells
(combinatorial screening of ternary Pt-Ni-Cr **catalysts** for methanol electro-oxidation in)

IT **Catalysts**
(electrocatalysts; combinatorial screening of ternary Pt-Ni-Cr **catalysts** for methanol electro-oxidation)

IT Coating process
(electroless; of ternary Pt-Ni-Cr **catalysts** for methanol electro-oxidation on carbon support)

IT Chronoamperometry
Current density
(of methanol oxidation on Pt, Pt-Ru and ternary Pt-Ni-Cr **catalysts** deposited on carbon support in sulfuric acid soln)

IT Sputtering
(preparation of ternary Pt-Ni-Cr **catalysts** for methanol electro-oxidation by)

IT Multilayers
(preparation of ternary Pt-Ni-Cr **catalysts** for methanol electro-oxidation by sputtering)

IT Combinatorial chemistry
(solid-phase; combinatorial screening of ternary Pt-Ni-Cr **catalysts** for methanol electro-oxidation)

IT 67-56-1, Methanol, reactions
RL: PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)

(combinatorial screening of ternary Pt-Ni-Cr catalysts for methanol electro-oxidation)

IT 177835-27-7
RL: CAT (Catalyst use); USES (Uses)
(combinatorial screening of ternary Pt-Ni-Cr catalysts for methanol electro-oxidation in)

IT 7440-06-4, Platinum, uses 12714-36-2, Platinum 50, ruthenium 50(atomic)
RL: CAT (Catalyst use); FMU (Formation, unclassified); PEP (Physical, engineering or chemical process); FORM (Formation, nonpreparative); PROC (Process); USES (Uses)
(deposition of ternary Pt-Ni-Cr catalysts for methanol electro-oxidation on carbon support)

IT 7440-44-0, Carbon, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(deposition of ternary Pt-Ni-Cr catalysts for methanol electro-oxidation on carbon support)

IT 1146619-29-5
RL: CAT (Catalyst use); FMU (Formation, unclassified); PEP (Physical, engineering or chemical process); FORM (Formation, nonpreparative); PROC (Process); USES (Uses)
(deposition of ternary Pt-Ni-Cr catalysts for methanol electro-oxidation on carbon support in solution containing)

IT 7718-54-9, Nickel dichloride, reactions 13548-38-4, Chromium nitrate 16940-66-2, Sodium tetrahydroborate 16941-12-1, Hexachloroplatinic acid
RL: PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)
(deposition of ternary Pt-Ni-Cr catalysts for methanol electro-oxidation on carbon support in solution containing)

IT 7664-93-9, Sulfuric acid, uses
RL: NUU (Other use, unclassified); USES (Uses)
(electrooxidn. of methanol oxidation on Pt, Pt-Ru and ternary Pt-Ni-Cr catalysts deposited on carbon support in sulfuric acid soln)

IT 7440-21-3, Silicon, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(preparation of ternary Pt-Ni-Cr catalysts for methanol electro-oxidation by sputtering on)

OSC.G 5 THERE ARE 5 CAPLUS RECORDS THAT CITE THIS RECORD (5 CITINGS)

RE.CNT 23 THERE ARE 23 CITED REFERENCES AVAILABLE FOR THIS RECORD ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 3 OF 15 HCAPLUS COPYRIGHT 2009 ACS on STN

AN 2007:1243429 HCAPLUS Full-text

DN 147:505407

TI Catalyst, membrane electrode assembly and fuel cell
IN Mei, Wu; Fukazawa, Taishi; Sato, Takahiro; Mizutani, Itsuko; Kobayashi, Tsuyoshi; Nakano, Yoshihiko
PA Japan
SO U.S. Pat. Appl. Publ., 17 pp.
CODEN: USXXCO
DT Patent
LA English
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 20070254806	A1	20071101	US 2007-737393	20070419
JP 2007317641	A	20071206	JP 2007-57450	20070307
CN 101064368	A	20071031	CN 2007-10104770	20070426
KR 2007106457	A	20071101	KR 2007-41472	20070427
KR 873536	B1	20081211		

PRAI JP 2006-126854 A 20060428
JP 2007-57450 A 20070307
ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT
AB A catalyst includes a conductive carrier and catalyst particles. The catalyst particles are supported on the conductive carrier and have a composition represented by the formula: PtxRuyTz, where the T-element is at least one element selected from the group consisting of V, Nb and Hf, x is 30 to 60 atomic%, y is 20 to 50 atomic% and z is 5 to 50 atomic%. An area of a peak derived from a metal bond of a T-element is 15% or more of an area of a peak derived from an oxygen bond of the T-element in a spectrum obtained by X-ray photoelectron spectroscopic method.
IT 955120-11-3P 955120-26-0P
RL: CAT (Catalyst use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(catalyst, membrane electrode assembly and fuel cell)
RN 955120-11-3 HCAPLUS
CN Platinum alloy, base, Pt 65,Ru 23,Ni 6.8,V 3.2,Cr 1.6 (CA INDEX NAME)

Component	Component Percent	Component Registry Number

Pt	65	7440-06-4
Ru	23	7440-18-8
Ni	6.8	7440-02-0
V	3.2	7440-62-2
Cr	1.6	7440-47-3

RN 955120-26-0 HCAPLUS
CN Platinum alloy, base, Pt 61,Ru 17,Ni 14,W 7.1,Cr 1.2 (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Pt	61	7440-06-4
Ru	17	7440-18-8
Ni	14	7440-02-0
W	7.1	7440-33-7
Cr	1.2	7440-47-3

INCL 502325000; 429044000
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 56, 67
ST fuel cell **catalyst** membrane electrode assembly
IT Fuel cells
Membrane electrodes
Sputtering
(**catalyst**, membrane electrode assembly and fuel cell)
IT Carbon black
RL: CAT (Catalyst use); USES (Uses)
(**catalyst**, membrane electrode assembly and fuel cell)
IT **Catalysts**
(electrocatalysts; **catalyst**, membrane electrode assembly and fuel cell)
IT Polyoxyalkylenes
RL: TEM (Technical or engineered material use); USES (Uses)
(fluorine- and sulfo-containing, ionomers; **catalyst**, membrane electrode assembly and fuel cell)
IT Fluoropolymers
RL: TEM (Technical or engineered material use); USES (Uses)
(polyoxyalkylene-, sulfo-containing, ionomers; **catalyst**, membrane electrode assembly and fuel cell)
IT Ionomers
RL: TEM (Technical or engineered material use); USES (Uses)
(polyoxyalkylenes, fluorine- and sulfo-containing; **catalyst**, membrane electrode assembly and fuel cell)
IT 955119-82-1P 955119-84-3P 955119-86-5P 955119-87-6P

955119-89-8P 955119-91-2P 955119-92-3P 955119-93-4P
955119-94-5P 955119-95-6P 955119-96-7P 955119-97-8P
955119-98-9P 955119-99-0P 955120-00-0P 955120-01-1P
955120-02-2P 955120-03-3P 955120-04-4P 955120-05-5P
955120-06-6P 955120-07-7P 955120-08-8P 955120-09-9P
955120-10-2P 955120-11-3P 955120-12-4P 955120-13-5P
955120-14-6P 955120-15-7P 955120-16-8P 955120-17-9P
955120-18-0P 955120-19-1P 955120-20-4P 955120-21-5P
955120-22-6P 955120-23-7P 955120-24-8P 955120-25-9P
955120-26-0P 955120-27-1P 955120-28-2P 955120-29-3P
955120-30-6P 955120-31-7P 955120-32-8P 955120-33-9P
955120-34-0P 955120-35-1P 955120-36-2P 955120-37-3P
955120-38-4P 955120-39-5P
RL: CAT (Catalyst use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(catalyst, membrane electrode assembly and fuel cell)

IT 67-56-1, Methanol, uses 66796-30-3, Nafion 117
RL: TEM (Technical or engineered material use); USES (Uses)
(catalyst, membrane electrode assembly and fuel cell)

L4 ANSWER 4 OF 15 HCAPLUS COPYRIGHT 2009 ACS on STN
AN 2006:1235451 HCAPLUS Full-text
DN 146:187385
TI Performance and stability of Pt-based ternary alloy catalysts for PEMFC
AU Seo, Aeree; Lee, Jaeseung; Han, Kookil; Kim, Hasuck
CS Department of Chemistry, Seoul National University, Seoul, 151-747, S. Korea
SO Electrochimica Acta (2006), 52(4), 1603-1611
CODEN: ELCAAV; ISSN: 0013-4686
PB Elsevier B.V.
DT Journal
LA English
AB C-supported Pt-based ternary alloy electrocatalysts were prepared by incipient wetness method to study the enhanced activity of O reduction in PEMFCs. To measure the catalytic activity and stability of the cathode alloy catalysts (electrodes containing Pt loading of 0.3 mg/cm2, 20% Pt/C, E-TEK), I-V polarization curves were obtained. All alloy catalysts showed higher performances than Pt/C. Pt formed alloys with transition metals - the electronic state of Pt and the nearest neighbor Pt-Pt distance changes and this influences the electrocatalytic activity for O reduction Long-term stability was tested for the Pt6Co1Cr1/C alloy catalyst for 500 h. According to XPS, the lower oxide component with Pt6Co1Cr1/C electrocatalyst provides a large portion of Pt in metallic species in the electrocatalyst and it seems to be mainly responsible for its enhanced activity towards O reduction

IT 921611-57-6
RL: CAT (Catalyst use); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(performance and stability of Pt-based ternary alloy catalysts for PEMFCs)
RN 921611-57-6 HCAPLUS
CN Platinum alloy, base, Pt 92,Ni 4.5,Cr 3.8 (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Pt	92	7440-06-4
Ni	4.5	7440-02-0
Cr	3.8	7440-47-3

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 56, 67
ST platinum ternary alloy cathode catalyst fuel cell
IT Reduction catalysts
(electrochem.; performance and stability of Pt-based ternary alloy catalysts for PEMFCs)
IT Fuel cell cathodes
(performance and stability of Pt-based ternary alloy catalysts for PEMFCs)
IT Fuel cells
(proton exchange membrane; performance and stability of Pt-based ternary alloy catalysts for PEMFCs)
IT Alloys, uses
RL: CAT (Catalyst use); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(ternary; performance and stability of Pt-based ternary alloy catalysts for PEMFCs)
IT 7440-44-0, Carbon, uses
RL: CAT (Catalyst use); TEM (Technical or engineered material use); USES (Uses)
(catalyst support; performance and stability of Pt-based ternary alloy catalysts for PEMFCs)
IT 921611-55-4 921611-56-5 921611-57-6 921611-58-7
921611-59-8 921611-60-1 921611-61-2
RL: CAT (Catalyst use); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(performance and stability of Pt-based ternary alloy catalysts for PEMFCs)
OSC.G 11 THERE ARE 11 CAPLUS RECORDS THAT CITE THIS RECORD (11 CITINGS)
RE.CNT 20 THERE ARE 20 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 5 OF 15 HCAPLUS COPYRIGHT 2009 ACS on STN
AN 2005:1155369 HCAPLUS Full-text
DN 143:424682
TI Membrane-electrode assembly and fuel cell system
IN Cho, Kyu-Woong
PA S. Korea
SO U.S. Pat. Appl. Publ., 11 pp.
CODEN: USXXCO
DT Patent
LA English
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 20050238936	A1	20051027	US 2005-114103	200504 26
KR 2005103648	A	20051101	KR 2004-28909	200404 27
CN 1694288	A	20051109	CN 2005-10079254	200504 27
CN 100352089	C	20071128		
JP 2005317546	A	20051110	JP 2005-130506	200504 27

PRAI KR 2004-28909 A 20040427
ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT
AB A membrane-electrode assembly is described for a fuel cell and fuel cell system. The membrane-electrode assembly includes a catalyst layer formed on both sides of a polymer electrolyte membrane, a platinum-metal alloy catalyst included in the catalyst layer, where the alloy catalyst shows a diffraction peak in a 110 plane at a degree 2θ=30-35 in the measurement of X-ray (CuK α) diffraction. The alloy catalyst has an excellent stability due to the compact crystal lattice structure of the catalyst, and it incurs low production costs and has sensitive reactivity.
IT 123553-84-4
RL: CAT (Catalyst use); USES (Uses)
(membrane electrode assembly and fuel cell system)
RN 123553-84-4 HCAPLUS
CN Platinum alloy, base, Pt 78,Ni 12,Cr 10 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number

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=========+=============+===============
    Pt          78             7440-06-4
    Ni          12             7440-02-0
    Cr          10             7440-47-3

IC   ICM  H01M004-92
     ICS  H01M008-10; B01J021-18
INCL 429030000; 429040000; 502185000
CC   52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
     Section cross-reference(s): 55, 56, 67
IT   1344-28-1, Alumina, uses   7439-89-6, Iron, uses   7440-02-0,
     Nickel, uses   7440-06-4, Platinum, uses   7440-44-0, Carbon, uses
     7440-47-3, Chromium, uses   7440-48-4, Cobalt, uses   7631-86-9,
     Silica, uses   11105-45-6   37256-04-5, Nickel 50, platinum 50
     (atomic)   37274-26-3, Iron 50, platinum 50 (atomic)   39305-53-8,
     Cobalt 50, platinum 50 (atomic)   77506-59-3, Chromium 50, platinum
     50 (atomic)   123553-84-4
     RL: CAT (Catalyst use); USES (Uses)
        (membrane electrode assembly and fuel cell system)

L4   ANSWER 6 OF 15  HCAPLUS  COPYRIGHT 2009 ACS on STN
AN   2005:16051  HCAPLUS  Full-text
DN   142:117646
TI   Platinum-chromium-copper/nickel fuel cell catalyst
IN   Chondroudis, Konstantinos; Gorer, Alexander; Devenney, Martin; He,
     Ting; Oyanagi, Hiroyuki; Giaquinta, Daniel M.; Urata, Kenta; Fukuda,
     Hiroichi; Fan, Qun; Strasser, Peter
PA   Symyx Technologies, Inc., USA; Honda Giken Kogyo Kabushiki Kaisha
SO   PCT Int. Appl., 70 pp.
     CODEN: PIXXD2                    Instant application
DT   Patent                           10/559,637
LA   English
FAN.CNT 1
     PATENT NO.          KIND   DATE        APPLICATION NO.        DATE
     --------------      ----   --------    -------------------
     --------
PI   WO 2005001967        A1    20050106    WO 2004-US17333
                                                                  200406
                                                                  03
         W:  AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA,
             CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,
             GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP,
             KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW,
             MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD,
             SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ,
             VC, VN, YU, ZA, ZM, ZW
         RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW,
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AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

US 20060251952 A1 20061109 US 2005-559637 200512 02

PRAI US 2003-475559P P 20030603
WO 2004-US17333 W 20040603

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

AB A fuel cell catalyst comprising platinum, chromium, and copper, nickel or a combination thereof is disclosed. In one or more embodiments, the concentration of platinum is less than 50 atomic%, and/or the concentration of chromium is less than 30 atomic%, and/or the concentration of copper, nickel, or a combination thereof is at least 35 atomic%.

IT 821770-72-3P 821770-74-5P
821770-75-6P 821770-76-7P 821770-97-2P
821770-98-3P 821770-99-4P 821771-00-0P
821771-01-1P 821771-02-2P 821771-03-3P
821771-04-4P 821771-05-5P 821771-06-6P
821771-07-7P 821771-08-8P 821771-09-9P
821771-10-2P 821771-11-3P 821771-12-4P
821771-13-5P 821771-14-6P 821771-15-7P
821771-16-8P 821771-17-9P 821771-19-1P
821771-20-4P 821771-21-5P 821771-22-6P
821771-23-7P
RL: CAT (Catalyst use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(platinum-chromium-copper/nickel fuel cell catalyst)

RN 821770-72-3 HCAPLUS
CN Platinum alloy, base, Pt 46,Ni 42,Cr 12 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Pt	46	7440-06-4
Ni	42	7440-02-0
Cr	12	7440-47-3

RN 821770-74-5 HCAPLUS
CN Platinum alloy, base, Pt 48,Cu 31,Cr 13,Ni 7.3 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number

Pt	48	7440-06-4
Cu	31	7440-50-8
Cr	13	7440-47-3
Ni	7.3	7440-02-0

RN 821770-75-6 HCAPLUS
CN Platinum alloy, base, Pt 49,Cu 24,Ni 15,Cr 13 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Pt	49	7440-06-4
Cu	24	7440-50-8
Ni	15	7440-02-0
Cr	13	7440-47-3

RN 821770-76-7 HCAPLUS
CN Platinum alloy, base, Pt 70,Ni 21,Cr 9.3 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Pt	70	7440-06-4
Ni	21	7440-02-0
Cr	9.3	7440-47-3

RN 821770-97-2 HCAPLUS
CN Nickel alloy, base, Ni 48,Pt 46,Cr 6.1 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Ni	48	7440-02-0
Pt	46	7440-06-4
Cr	6.1	7440-47-3

RN 821770-98-3 HCAPLUS
CN Platinum alloy, base, Pt 59,Ni 36,Cr 5.3 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Pt	59	7440-06-4
Ni	36	7440-02-0
Cr	5.3	7440-47-3

RN 821770-99-4 HCAPLUS

CN Platinum alloy, base, Pt 60,Ni 30,Cr 11 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Pt	60	7440-06-4
Ni	30	7440-02-0
Cr	11	7440-47-3

RN 821771-00-0 HCAPLUS
CN Platinum alloy, base, Pt 46,Ni 35,Cr 19 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Pt	46	7440-06-4
Ni	35	7440-02-0
Cr	19	7440-47-3

RN 821771-01-1 HCAPLUS
CN Platinum alloy, base, Pt 60,Ni 24,Cr 16 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Pt	60	7440-06-4
Ni	24	7440-02-0
Cr	16	7440-47-3

RN 821771-02-2 HCAPLUS
CN Platinum alloy, base, Pt 69,Ni 26,Cr 4.6 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Pt	69	7440-06-4
Ni	26	7440-02-0
Cr	4.6	7440-47-3

RN 821771-03-3 HCAPLUS
CN Platinum alloy, base, Pt 77,Ni 19,Cr 4.1 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Pt	77	7440-06-4
Ni	19	7440-02-0

Cr	4.1	7440-47-3

RN 821771-04-4 HCAPLUS
CN Platinum alloy, base, Pt 85,Cr 11,Ni 4.2 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Pt	85	7440-06-4
Cr	11	7440-47-3
Ni	4.2	7440-02-0

RN 821771-05-5 HCAPLUS
CN Platinum alloy, base, Pt 71,Cr 19,Ni 11 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Pt	71	7440-06-4
Cr	19	7440-47-3
Ni	11	7440-02-0

RN 821771-06-6 HCAPLUS
CN Platinum alloy, base, Pt 70,Ni 16,Cr 14 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Pt	70	7440-06-4
Ni	16	7440-02-0
Cr	14	7440-47-3

RN 821771-07-7 HCAPLUS
CN Platinum alloy, base, Pt 60,Cr 21,Ni 18 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Pt	60	7440-06-4
Cr	21	7440-47-3
Ni	18	7440-02-0

RN 821771-08-8 HCAPLUS
CN Platinum alloy, base, Pt 89,Ni 7.6,Cr 3.4 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number

Pt	89	7440-06-4
Ni	7.6	7440-02-0
Cr	3.4	7440-47-3

RN 821771-09-9 HCAPLUS
CN Platinum alloy, base, Pt 78,Ni 14,Cr 8.3 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Pt	78	7440-06-4
Ni	14	7440-02-0
Cr	8.3	7440-47-3

RN 821771-10-2 HCAPLUS
CN Platinum alloy, base, Pt 78,Cr 12,Ni 9.4 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Pt	78	7440-06-4
Cr	12	7440-47-3
Ni	9.4	7440-02-0

RN 821771-11-3 HCAPLUS
CN Platinum alloy, base, Pt 71,Cr 24,Ni 5.3 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Pt	71	7440-06-4
Cr	24	7440-47-3
Ni	5.3	7440-02-0

RN 821771-12-4 HCAPLUS
CN Platinum alloy, base, Pt 93,Ni 3.5,Cr 3.1 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Pt	93	7440-06-4
Ni	3.5	7440-02-0
Cr	3.1	7440-47-3

RN 821771-13-5 HCAPLUS
CN Platinum alloy, base, Pt 61,Cr 27,Ni 12 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Pt	61	7440-06-4
Cr	27	7440-47-3
Ni	12	7440-02-0

RN 821771-14-6 HCAPLUS
CN Platinum alloy, base, Pt 84,Ni 13,Cr 3.7 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Pt	84	7440-06-4
Ni	13	7440-02-0
Cr	3.7	7440-47-3

RN 821771-15-7 HCAPLUS
CN Platinum alloy, base, Pt 89,Cr 6.8,Ni 3.8 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Pt	89	7440-06-4
Cr	6.8	7440-47-3
Ni	3.8	7440-02-0

RN 821771-16-8 HCAPLUS
CN Platinum alloy, base, Pt 47,Cr 31,Ni 21 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Pt	47	7440-06-4
Cr	31	7440-47-3
Ni	21	7440-02-0

RN 821771-17-9 HCAPLUS
CN Platinum alloy, base, Pt 79,Cr 17,Ni 4.7 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Pt	79	7440-06-4
Cr	17	7440-47-3
Ni	4.7	7440-02-0

RN 821771-19-1 HCAPLUS
CN Platinum alloy, base, Pt 84,Ni 8.4,Cr 7.5 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Pt	84	7440-06-4
Ni	8.4	7440-02-0
Cr	7.5	7440-47-3

RN 821771-20-4 HCAPLUS
CN Platinum alloy, base, Pt 61,Cr 33,Ni 6.1 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Pt	61	7440-06-4
Cr	33	7440-47-3
Ni	6.1	7440-02-0

RN 821771-21-5 HCAPLUS
CN Platinum alloy, base, Pt 48,Cr 45,Ni 7.2 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Pt	48	7440-06-4
Cr	45	7440-47-3
Ni	7.2	7440-02-0

RN 821771-22-6 HCAPLUS
CN Platinum alloy, base, Pt 47,Ni 28,Cr 25 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Pt	47	7440-06-4
Ni	28	7440-02-0
Cr	25	7440-47-3

RN 821771-23-7 HCAPLUS
CN Platinum alloy, base, Pt 48,Cr 38,Ni 14 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number

Pt	48	7440-06-4
Cr	38	7440-47-3
Ni	14	7440-02-0

IC ICM H01M004-92
ICS H01M004-96; B01J023-26; B01J023-42; B01J023-72; B01J023-755; B01J023-86; B01J023-89; H01M008-10
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 56, 67
ST platinum chromium copper nickel fuel cell **catalyst**
IT **Catalysts**
(electrocatalysts; platinum-chromium-copper/nickel fuel cell **catalyst**)
IT Fuels
(fossil; platinum-chromium-copper/nickel fuel cell **catalyst**)
IT Municipal refuse
(off-gas; platinum-chromium-copper/nickel fuel cell **catalyst**)
IT Hydrocarbons, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(oxy; platinum-chromium-copper/nickel fuel cell **catalyst**)
IT Fuel cell electrodes
Photolithography
(platinum-chromium-copper/nickel fuel cell **catalyst**)
IT Hydrocarbons, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(platinum-chromium-copper/nickel fuel cell **catalyst**)
IT Fuel cells
(proton exchange membrane; platinum-chromium-copper/nickel fuel cell **catalyst**)
IT Magnetron sputtering
(radio-frequency; platinum-chromium-copper/nickel fuel cell **catalyst**)
IT 7440-06-4, Platinum, uses
RL: CAT (Catalyst use); USES (Uses)
(platinum-chromium-copper/nickel fuel cell **catalyst**)
IT **821770-72-3P** 821770-73-4P **821770-74-5P**
821770-75-6P **821770-76-7P** 821770-77-8P
821770-78-9P 821770-79-0P 821770-80-3P 821770-81-4P
821770-82-5P 821770-83-6P 821770-84-7P 821770-85-8P
821770-86-9P 821770-87-0P 821770-88-1P 821770-89-2P
821770-90-5P 821770-91-6P 821770-92-7P 821770-93-8P
821770-94-9P 821770-95-0P 821770-96-1P **821770-97-2P**
821770-98-3P **821770-99-4P** **821771-00-0P**
821771-01-1P **821771-02-2P** **821771-03-3P**

821771-04-4P 821771-05-5P 821771-06-6P
821771-07-7P 821771-08-8P 821771-09-9P
821771-10-2P 821771-11-3P 821771-12-4P
821771-13-5P 821771-14-6P 821771-15-7P
821771-16-8P 821771-17-9P 821771-18-0P
821771-19-1P 821771-20-4P 821771-21-5P
821771-22-6P 821771-23-7P 821771-24-8P
821771-25-9P 821771-27-1P 821771-28-2P 821771-29-3P
821771-30-6P 821771-31-7P 821771-32-8P 821771-33-9P
821771-34-0P 821771-35-1P 821771-36-2P 821771-37-3P
821771-38-4P 821771-39-5P 821771-40-8P 821771-41-9P
821771-42-0P 821771-43-1P 821771-44-2P 821771-45-3P
821771-46-4P 821771-47-5P 821771-48-6P 821771-49-7P
821771-50-0P
RL: CAT (Catalyst use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(platinum-chromium-copper/nickel fuel cell catalyst)

IT 7782-44-7, Oxygen, processes
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)
(platinum-chromium-copper/nickel fuel cell catalyst)

IT 67-56-1, Methanol, uses 1333-74-0, Hydrogen, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(platinum-chromium-copper/nickel fuel cell catalyst)

OSC.G 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD (1 CITINGS)

RE.CNT 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 7 OF 15 HCAPLUS COPYRIGHT 2009 ACS on STN
AN 2003:582740 HCAPLUS Full-text
DN 139:137073
TI Production of porous structure containing functional compound fine particles dispersed in overall position
IN Yamauchi, Goro; Nakajima, Hideo; Taira, Hirohito; Mabuchi, Mamoru
PA Japan Science and Technology Corporation, Japan; National Institute of Advanced Industrial Science and Technology
SO Jpn. Kokai Tokkyo Koho, 5 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 2003213352	A	20030730	JP 2002-17453	200201

JP 4328052 B2 20090909
PRAI JP 2002-17453 20020125
AB The title porous structure is composed of a matrix made of an element Y, and dispersed fine particles made of a X-Z compound (X = element showing gaseous phase at an ordinary temperature, Z = element showing high affinity with X). The porous structure is produced by heating a porous material (porosity 0.1-95.0%) made of Y containing 0.00001-70 atomic% of Z in an atmospheric containing X with partial pressure capable of forming the X-Z compound but insufficient for forming a Y-X compound, to precipitate the X-Z compound in the form of grains or plate-like in overall position of the porous material. OO X Si,Mn,P,Al,Zn,Ti,Ni,Cr,Co,Fe,Be,Mg,Cd,In,Zr,Sn,Ce,Ca,Ga,B,Sb,Tl,Pb,Nb,Ta,Bi,Li,Mo,W,V,Pb.Hf 1 2 Z Z Ag,Cu,Ni,Fe,Pd,Co,Au,Pt,Cr,Mo,W,Ti,Zr,Hf,V,Nb,Ta,Ge,Sn,Pb 1 2 Y. NN X Ti,Zr,Al,Fe,Cr,Mo,V,Si 1 2 Z Z Ag,Cu,Ni,Fe,Pd,Co,Au,Pt,Cr,Mo,W 1 2 Y. FF X Be,Mg,Ca,Al,Ti,Si,Cr 1 2 Z Z Ag,Cu,Ni,Fe,Pd,Co,Au,Pt,Cr,Mo,W,Ti,Zr 1 2 Y. HH X La,Ca,Li,Ti,K,Na,U,Mg,Ni,Co,V,Fe,Mn,Ce,Al,Y,Zr 1 2 Z Z Ag,Cu,Ni,Fe,Pd,Co,Au,Pt,Cr,Mo,W,Ti,Zr,Mg 1 2 Y. Thus, a porous Ni-Ti alloy embedded in powder mixture of Ni oxide, Ni, and Al2O3, and heated in Ar to give a porous structure containing anatase-type photocatalytic TiO2 particles and rutile-type TiO2 particles.
IT 566144-25-0
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)
(starting material; in production of porous structure containing functional compound fine particles dispersed in overall position)
RN 566144-25-0 HCAPLUS
CN Iron alloy, base, Fe 44,Pt 39,Cr 9.9,Ni 4.9,Ti 3.2 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Fe	44	7439-89-6
Pt	39	7440-06-4
Cr	9.9	7440-47-3
Ni	4.9	7440-02-0
Ti	3.2	7440-32-6

IC ICM C22C001-08
ICS C22C032-00
CC 56-4 (Nonferrous Metals and Alloys)
Section cross-reference(s): 52, 59, 74
ST porous material dispersion functional fine particle; oxide particle dispersion porous material prepn; nitride particle dispersion porous

material prepn; fluoride particle dispersion porous material prepn; hydride particle dispersion porous material prepn; photocatalyst particle dispersion porous material prepn; compd catalyst particle dispersion porous material prepn; hydrogen absorbing particle dispersion porous material prepn

IT Catalysts
(compds., functional particles; production of porous structure containing functional compound fine particles dispersed in overall position)

IT Catalysts
(photochem., compds., functional particles; production of porous structure containing functional compound fine particles dispersed in overall position)

IT 566144-25-0
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)
(starting material; in production of porous structure containing functional compound fine particles dispersed in overall position)

L4 ANSWER 8 OF 15 HCAPLUS COPYRIGHT 2009 ACS on STN
AN 2001:66867 HCAPLUS Full-text
DN 134:240034
TI Electrode performance of Pt-Cr-Ni alloy catalysts for oxygen electrode in polymer electrolyte fuel cell
AU Shim, Joongpyo; Lee, Hong-Ki
CS Environmental Energy Tech. Div., Lawrence Berkeley National Lab., California, 94720, USA
SO Han'guk Chaelyo Hakhoechi (2000), 10(12), 831-837
CODEN: HCHAEU; ISSN: 1225-0562
PB Materials Research Society of Korea
DT Journal
LA Korean
AB To improve the catalytic activity of platinum on polymer electrolyte fuel cell(PEFC), platinum was alloyed with cobalt and nickel at various temperature By XRD, it was observed the crystal structure of alloy catalysts were the ordered face centered cubic(f.c.c) due to the superlattice line at 33°. As heat-treatment temperature was increased, the particle size of alloys also were increased and the crystalline lattice parameters were decreased. According to the results from mass activity, specific activity and Tafel slope measured by cell performance test and cyclic voltammogram, the catalyst activities of alloys are higher than that pure platinum.
IT 64136-44-3
RL: DEV (Device component use); USES (Uses)
(electrode performance of Pt-Cr-Ni alloy catalysts for oxygen electrode in polymer electrolyte fuel cell)

RN 64136-44-3 HCAPLUS
CN Chromium alloy, nonbase, Cr,Ni,Pt (9CI) (CA INDEX NAME)

Component	Component Registry Number
Cr	7440-47-3
Ni	7440-02-0
Pt	7440-06-4

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 56, 67, 72
ST conjugated polymer methanofullerene solar cell morphol; platinum chromium nickel alloy **catalyst** electrode
IT Crystal structure
Fuel cell cathodes
(electrode performance of Pt-Cr-Ni alloy **catalysts** for oxygen electrode in polymer electrolyte fuel cell)
IT Fuel cells
(polymer electrolyte; electrode performance of Pt-Cr-Ni alloy **catalysts** for oxygen electrode in polymer electrolyte fuel cell)
IT Platinum alloy, base
RL: DEV (Device component use); USES (Uses)
(electrode performance of Pt-Cr-Ni alloy **catalysts** for oxygen electrode in polymer electrolyte fuel cell)
IT **64136-44-3** 77950-55-1, Nafion 115
RL: DEV (Device component use); USES (Uses)
(electrode performance of Pt-Cr-Ni alloy **catalysts** for oxygen electrode in polymer electrolyte fuel cell)

L4 ANSWER 9 OF 15 HCAPLUS COPYRIGHT 2009 ACS on STN
AN 1998:656008 HCAPLUS Full-text
DN 129:262813
OREF 129:53505a,53508a
TI electrochemical **catalysts**, electrochemical reaction device and electrochemical elements using the **catalysts**, phosphoric acid fuel cells and methanol fuel cells
IN Mitsuda, Noriaki; Yoshioka, Shoji; Urushibata, Hiroaki; Fukumoto, Hisatoshi; Maeda, Hideo
PA Mitsubishi Electric Corp., Japan
SO Jpn. Kokai Tokkyo Koho, 19 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE

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PI	JP 10270055	A	19981009	JP 1997-71962	199703 25
PRAI	JP 1997-71962		19970325		

AB The electrochem. **catalysts** containing ≥2 different **catalytic** components of different rest potential connected by an ionic conductor and an electron conductor. The **catalyst** components may contain 2 Pt alloy **catalysts** containing different non-Pt metals selected form Ni, Cr, Co, and Fe; or contain Pt or Pt black and a Pt alloy containing Mo, Ru, Sn, Fe, and/or W. Electrochem. devices and electrochem. elements use the **catalysts** for their pos. electrodes. H3PO4 fuel cells and fuel cells supplied directly with MeOH as fuel use the **catalysts** for their cathodes or anodes.

IT **64136-44-3**
RL: CAT (Catalyst use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(**catalysts** containing ionic and electron conductors connecting different **catalytic** components for fuel cell electrodes)

RN 64136-44-3 HCAPLUS
CN Chromium alloy, nonbase, Cr,Ni,Pt (9CI) (CA INDEX NAME)

Component	Component Registry Number
Cr	7440-47-3
Ni	7440-02-0
Pt	7440-06-4

IC ICM H01M004-90
ICS B01J023-89; C25B011-06
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST electrochem **catalyst** platinum alloy compn structure; fuel cell electrode platinum alloy **catalyst**; phosphoric acid fuel cell electrode **catalyst**; electron conductor multicomponent **catalyst** connection; ionic conductor multicomponent **catalyst** connection; methanol fuel cell electrode **catalyst**

IT Carbon black, uses
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(**catalysts** containing ion conductors and carbon black electron conductors connecting different **catalytic** components for fuel cell electrodes)

IT **Catalysts**

Electric conductors
Fuel cell electrodes
(catalysts containing ionic and electron conductors connecting different catalytic components for fuel cell electrodes)

IT 7664-38-2, Phosphoric acid, uses
RL: DEV (Device component use); USES (Uses)
(catalysts containing ion conductors and phosphoric acid ion conductors connecting different catalytic components for fuel cell electrodes)

IT 7440-06-4, Platinum, uses 11107-69-0 64136-44-3 91810-23-0
RL: CAT (Catalyst use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(catalysts containing ionic and electron conductors connecting different catalytic components for fuel cell electrodes)

IT 67-56-1, Methanol, miscellaneous
RL: MSC (Miscellaneous)
(catalysts containing ionic and electron conductors connecting different catalytic components for methanol anodes in fuel cells)

OSC.G 2 THERE ARE 2 CAPLUS RECORDS THAT CITE THIS RECORD (2 CITINGS)

L4 ANSWER 10 OF 15 HCAPLUS COPYRIGHT 2009 ACS on STN
AN 1997:55888 HCAPLUS Full-text
DN 126:77448
OREF 126:14937a,14940a
TI Platinum-aluminum alloy catalyst for fuel cells and its preparation
IN Freund, Andreas; Lehmann, Thomas; Starz, Karl-Anton; Heinz, Gerhard; Schwarz, Robert
PA Degussa AG, Germany
SO Eur. Pat. Appl., 16 pp.
CODEN: EPXXDW
DT Patent
LA German
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI EP 743092	A1	19961120	EP 1996-106596	19960426
EP 743092	B1	19990901		

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LI, LU, NL, PT,

	SE			
DE 19517598	C1	19970102	DE 1995-19517598	199505 13
AT 183946	T	19990915	AT 1996-106596	199604 26
US 5767036	A	19980616	US 1996-646394	199605 08
JP 09017435	A	19970117	JP 1996-115061	199605 09
JP 2880450	B2	19990412		
PRAI DE 1995-19517598	A	19950513		

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

AB The catalyst is PtpAlqMr, where p:q atomic ratio is 85:15-60:40, (p + q):r atomic ratio is 85:15-50:50, and M is ≥1 element selected from Group VIB, VIIB, VIII, and IB elements. M is selected from Cr, Mo, W, Mn, Fe, Co, Ni, Rh, and Au. The catalyst exists on a conductive C support as a carbide having a structure of Pt3AlC0.5. The catalyst is prepared from aqueous suspension of conductive C support and aqueous solns. of alloy components.

IT 185390-47-0P
RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(catalyst for fuel cells and its preparation)

RN 185390-47-0 HCAPLUS

CN Platinum alloy, base, Pt 77,Cr 14,Ni 5.2,Al 3.6 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Pt	77	7440-06-4
Cr	14	7440-47-3
Ni	5.2	7440-02-0
Al	3.6	7429-90-5

IC ICM B01J023-42
ICS B01J023-89; H01M004-92

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 56, 67

ST platinum aluminum alloy catalyst fuel cell; chromium platinum aluminum alloy catalyst; molybdenum platinum aluminum alloy catalyst; tungsten platinum aluminum alloy catalyst; manganese platinum aluminum alloy catalyst

; iron platinum aluminum alloy catalyst; cobalt platinum aluminum alloy catalyst; nickel platinum aluminum alloy catalyst; rhodium platinum aluminum alloy catalyst ; gold platinum aluminum alloy catalyst

IT Fuel cell electrodes
(catalytic; aluminum-platinum alloy)

IT 56320-40-2P 185390-39-0P 185390-40-3P 185390-41-4P 185390-42-5P 185390-43-6P 185390-44-7P 185390-45-8P 185390-46-9P 185390-47-0P 185390-48-1P 185390-49-2P 185390-50-5P, Aluminum platinum carbide (AlPt3C0.5)
RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(catalyst for fuel cells and its preparation)

OSC.G 35 THERE ARE 35 CAPLUS RECORDS THAT CITE THIS RECORD (47 CITINGS)

L4 ANSWER 11 OF 15 HCAPLUS COPYRIGHT 2009 ACS on STN
AN 1997:1502 HCAPLUS Full-text
DN 126:163438
OREF 126:31487a,31490a
TI Changes in cathode catalyst structure and activity in phosphoric acid fuel cell operation
AU Maoka, T.; Kitai, T.; Segawa, N.; Ueno, M.
CS Heavy Apparatus Engineering Lab., Toshiba Corp., Kawasaki, 210, Japan
SO Journal of Applied Electrochemistry (1996), 26(12), 1267-1272
CODEN: JAELBJ; ISSN: 0021-891X
PB Chapman & Hall
DT Journal
LA English
AB Changes in the cathode catalyst structure and activity obtained from a small size phosphoric acid fuel cell (PAFC) operated for various times up to 1200 h, were examined The platinum surface oxide reduction potential in cyclic voltammograms (CV) shifted in the pos. direction with cell operation. This may be one of the manifestations of the activity enhancement for the oxygen reduction reaction (ORR). It was assumed that this activity increase for the ORR was caused by an increase in the surface roughness, due to the dissoln. of the alloyed base metals. Changes in the platinum chemical state of the alloy surface, from PtO to Pt, and growth of the Pt (110) plane would also contribute to this effect.

IT 64136-44-3
RL: CAT (Catalyst use); DEV (Device component use); PRP (Properties); USES (Uses)
(platinum alloy catalyst change to platinum with fuel cell operation and platinum oxide reduction potential shifted in pos.

direction with increase in oxygen reduction activity)
RN 64136-44-3 HCAPLUS
CN Chromium alloy, nonbase, Cr,Ni,Pt (9CI) (CA INDEX NAME)

Component	Component Registry Number
Cr	7440-47-3
Ni	7440-02-0
Pt	7440-06-4

CC 72-2 (Electrochemistry)
Section cross-reference(s): 52, 67
ST cathode **catalyst** structure activity fuel cell; phosphoric acid fuel cell cathode **catalyst**; oxygen electroredn platinum crystallite
IT Fuel cell cathodes
(changes in cathode **catalyst** structure and activity in phosphoric acid fuel cell operation)
IT Reduction **catalysts**
(electrochem.; changes in cathode **catalyst** structure and activity in phosphoric acid fuel cell operation)
IT Crystallites
(size of platinum: changes in cathode **catalyst** structure and activity in phosphoric acid fuel cell operation)
IT Platinum alloy
RL: CAT (Catalyst use); DEV (Device component use); PRP (Properties); USES (Uses)
(platinum alloy **catalyst** change to platinum with fuel cell operation and platinum oxide reduction potential shifted in pos.
direction with increase in oxygen reduction activity)
IT 7664-38-2, Phosphoric acid, uses
RL: DEV (Device component use); USES (Uses)
(changes in cathode **catalyst** structure and activity in phosphoric acid fuel cell operation)
IT 7440-06-4, Platinum, uses 60596-33-0 **64136-44-3**
RL: CAT (Catalyst use); DEV (Device component use); PRP (Properties); USES (Uses)
(platinum alloy **catalyst** change to platinum with fuel cell operation and platinum oxide reduction potential shifted in pos.
direction with increase in oxygen reduction activity)
IT 7782-44-7, Oxygen, properties
RL: PRP (Properties); RCT (Reactant); RACT (Reactant or reagent)
(platinum alloy **catalyst** change to platinum with fuel cell operation and platinum oxide reduction potential shifted in

pos.
direction with increase in oxygen reduction activity)
OSC.G 5 THERE ARE 5 CAPLUS RECORDS THAT CITE THIS RECORD (5 CITINGS)

L4 ANSWER 12 OF 15 HCAPLUS COPYRIGHT 2009 ACS on STN
AN 1989:602888 HCAPLUS Full-text
DN 111:202888
OREF 111:33580h,33581a
TI Fuel-cell-electrode platinum **catalyst** and its preparation with carbon supports and carbides
IN Tsurumi, Kazunori; Nakamura, Toshihide; Sato, Akira
PA Tanaka Kikinzoku Kogyo K. K., Japan
SO Eur. Pat. Appl., 10 pp.
CODEN: EPXXDW
DT Patent
LA English
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI EP 329626	A1	19890823	EP 1989-830062	19890217
EP 329626	B1	19930512		
R: DE, GB, IT				
JP 01210035	A	19890823	JP 1988-36248	19880218
US 4985386	A	19910115	US 1989-312684	19890217
PRAI JP 1988-36248	A	19880218		

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

AB A Pt **catalyst**, useful for fuel-cell electrodes, comprises C supports and the carbides of Pt and ≥ 1 metal selected from Ni, Co, Cr, and Fe, and, if necessary, of Mn, supported on the C supports. The **catalyst** possesses superior **catalyst** performance because the **catalyst** metals are firmly fixed to the C supports by carburizing. The process for preparing the platinum **catalyst** includes alloying the metals by employing their organic acid amine salts. This alloying requires a lower temperature than that in a conventional process so that the movement of the metals which leads to agglomeration thereof can be advantageously prevented.

IT 123553-84-4
RL: CAT (Catalyst use); USES (Uses)
(**catalysts** from carbon and)

RN 123553-84-4 HCAPLUS
CN Platinum alloy, base, Pt 78,Ni 12,Cr 10 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Pt	78	7440-06-4
Ni	12	7440-02-0
Cr	10	7440-47-3

IC ICM B01J027-22
ICS B01J023-89; H01M004-92
CC 67-1 (Catalysis, Reaction Kinetics, and Inorganic Reaction Mechanisms)
Section cross-reference(s): 52
ST platinum catalyst carbon support; fuel cell electrode platinum catalyst
IT Catalysts and Catalysis
(from metal carbides and carbon, preparation of)
IT Electrodes
(fuel-cell, catalytic, metal carbide-carbon catalysts for)
IT 11130-49-7, Chromium carbide 12624-23-6, Platinum carbide 12640-64-1, Iron carbide 12710-36-0, Nickel carbide 12777-96-7, Manganese carbide 37256-04-5, Nickel 50, platinum 50(atomic) 37274-26-3, Iron 50, platinum 50(atomic) 39305-53-8, Cobalt 50, platinum 50(atomic) 51177-04-9, Cobalt carbide 77506-59-3, Chromium 50, platinum 50(atomic) 123553-82-2 123553-83-3 123553-84-4 123553-85-5
RL: CAT (Catalyst use); USES (Uses)
(catalysts from carbon and)
IT 7440-44-0, Carbon, uses and miscellaneous
RL: CAT (Catalyst use); USES (Uses)
(catalysts from metal carbides and)
IT 7772-98-7
RL: RCT (Reactant); RACT (Reactant or reagent)
(reductant, in platinum-containing catalyst preparation)
IT 7681-57-4, Sodium metabisulfite
RL: RCT (Reactant); RACT (Reactant or reagent)
(reductant, in platinum-containing catalysts preparation)
OSC.G 11 THERE ARE 11 CAPLUS RECORDS THAT CITE THIS RECORD (11 CITINGS)

L4 ANSWER 13 OF 15 HCAPLUS COPYRIGHT 2009 ACS on STN
AN 1989:561421 HCAPLUS Full-text
DN 111:161421
OREF 111:26800a

TI Process for alloying metals on supports for catalysts
IN Tsurumi, Kazunori; Nakamura, Toshihide; Sato, Akira
PA Tanaka Kikinzoku Kogyo K. K., Japan
SO Eur. Pat. Appl., 6 pp.
CODEN: EPXXDW
DT Patent
LA English
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI EP 330627	A1	19890830	EP 1989-830063	19890217
EP 330627	B1	19911106		
R: DE, GB, IT				
JP 01210037	A	19890823	JP 1988-36250	19880218
JP 2556874	B2	19961127		
US 4954474	A	19900904	US 1989-312671	19890217
PRAI JP 1988-36250	A	19880218		

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT
AB A process for alloying metals on catalyst inorg. supports comprises applying the solution of an organic acid amine salt of a 2nd metal onto the inorg. supports already supporting a 1st metal; reducing the salt to the corresponding metal; and alloying the metals by heating. The alloying of the metals can be performed at a relatively low temperature, therefore, a highly active binary or ternary catalyst having a large surface area can be obtained.
IT 64136-44-3P
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of, on catalyst support)
RN 64136-44-3 HCAPLUS
CN Chromium alloy, nonbase, Cr,Ni,Pt (9CI) (CA INDEX NAME)

Component	Component Registry Number
Cr	7440-47-3
Ni	7440-02-0
Pt	7440-06-4

IC ICM B01J023-89
ICS B01J023-64; B01J037-00; H01M004-92

CC 67-1 (Catalysis, Reaction Kinetics, and Inorganic Reaction Mechanisms)
ST alloying on catalyst support
IT Carbon black, uses and miscellaneous
RL: USES (Uses)
(alloying on catalyst support of)
IT Catalysts and Catalysis
(alloying on supports in preparation of)
IT 7439-89-6, Iron, reactions 7440-02-0, Nickel, reactions
7440-06-4, Platinum, reactions 7440-47-3, Chromium, reactions
7440-48-4, Cobalt, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(alloying of, on catalyst support)
IT 7440-44-0, Carbon, uses and miscellaneous
RL: USES (Uses)
(alloying on catalyst support of)
IT 11134-15-9P 12623-52-8P 12623-53-9P 60596-33-0P
64136-44-3P 91033-96-4P
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of, on catalyst support)
OSC.G 3 THERE ARE 3 CAPLUS RECORDS THAT CITE THIS RECORD (3 CITINGS)

L4 ANSWER 14 OF 15 HCAPLUS COPYRIGHT 2009 ACS on STN
AN 1982:459398 HCAPLUS Full-text
DN 97:59398
OREF 97:9933a,9936a
TI Catalytically active metal alloy
IN Barnabe, Jean Louis
PA Regie Nationale des Usines Renault, Fr.
SO Ger. Offen., 16 pp.
CODEN: GWXXBX
DT Patent
LA German
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 3026777	A1	19820211	DE 1980-3026777	19800715
DE 3026777	C2	19830728		

PRAI DE 1980-3026777 19800715
AB Alloys for exhaust gas catalyst contains Fe 40-80, Cr 0-40, Ni 0-40, C 0.02-0.1, ≥1 of Pt-group metals 0.05-2, preferably Pt 0.05-0.2, Ru 0.1-0.2, Rh 0.02-0.1, and Pd 0.05-0.2 %, and Ce, Cu, Mo, Ti, La, Ca, Y, Al, W, and Mn as activators or stabilizers. The alloys are melted

in air or vacuum, quenched from .apprx.1150°, crushed into small pieces, followed by repeated quenching from 1050-1150° and tempering at 400-800° in 30 min-10 h to sensitize to intergranular corrosion, pickling in HCl-HNO3 solution, then in aqueous 20% HCl, 2 h in 5-30 % oxalic acid at 60-90; and then oxidation at .apprx.350°. The intergranular corrosion can also be effected by anodic oxidation in 1% acid solution, the alloy being the anode, at .apprx.3 V and <30 min. Thus, an Fe alloy [82512-83-2] containing Cr 25, Ni 20, Pt 0.2, Ru 0.15, Rh 0.05, and C 0.3% was rolled to 0.05 mm, quenched from 1050°, tempered 8 h at 600°, etched 30 min in concentrated HNO3 containing 10% HCl, then 2 min in 20% HCl, 2 h in 20% oxalic acid at 80° to form Fe and Ni oxalates, oxidized at 350° to form powdered Fe and Ni oxides, and tested in combustion gases containing CO 1.5, O 0.8% propylene or propane 400 and N oxide 2000 ppm. At the test temperature of 300-500° the efficiency of the catalyst was 90% for CO, 95 for C3H6, and 95 for N oxide, and, after aging 5 h at 700°, the resp. efficiency values were 53, 63, and 68, i.e., still acceptable.

IT 82512-83-2
RL: CAT (Catalyst use); USES (Uses)
(catalysts, for automobile exhaust converters)

RN 82512-83-2 HCAPLUS

CN Iron alloy, base, Fe 54,Cr 25,Ni 20,C 0.3,Pt 0.2,Ru 0.2 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Fe	54	7439-89-6
Cr	25	7440-47-3
Ni	20	7440-02-0
C	0.3	7440-44-0
Pt	0.2	7440-06-4
Ru	0.2	7440-18-8

IC C22C038-00; B01J023-89

CC 55-3 (Ferrous Metals and Alloys)
Section cross-reference(s): 59, 67

ST catalyst converter iron chromium nickel; exhaust automobile catalyst converter; platinum iron catalyst converter

IT Air pollution
(by exhaust gases, alloys for catalysts for prevention by)

IT Exhaust gases
(catalysts for)

IT Platinum-group metals

RL: USES (Uses)
(in iron alloy **catalysts**, for automobile exhaust converters)
IT 82512-83-2
RL: CAT (Catalyst use); USES (Uses)
(**catalysts**, for automobile exhaust converters)
IT 7440-16-6, uses and miscellaneous
RL: USES (Uses)
(in iron alloy **catalysts**, for automobile exhaust converters)
RE.CNT 1 THERE ARE 1 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 15 OF 15 HCAPLUS COPYRIGHT 2009 ACS on STN
AN 1977:522044 HCAPLUS Full-text
DN 87:122044
OREF 87:19325a,19328a
TI **Catalytic** purification of ventilation discharges in the production of medical preparation
AU Doronina, L. M.; Eshenbakh, L. F.; Ivanova, G. A.
CS Gos. Nauchno-Issled. Inst. Prom. Sanit. Ochist. Gazov, Dzerzhinsk, USSR
SO Promyshlennaya i Sanitarnaya Ochistka Gazov (1977), (1), 14-15
CODEN: PSGADK; ISSN: 0131-5498
DT Journal
LA Russian
AB The **catalytic** conversion of iso-PrOH [67-63-0] (4 mg/L) and phenol [108-95-2] (0.2 mg/L) by 5 **catalysts** (Al-Pt, CuO, Cu-Cr, Pt-Ni-Cr, and Fe-Cr) was studied. A conversion of 98 - 100% was achieved with Cu-Cr and Al-Pt **catalysts** at 270° for iso-PrOH and at 340° for phenol. The Al-Pt **catalyst**, AP-56, was recommended for industrial use as it is also suitable for oxidation of HCl commonly present in effluent gases from pharmaceutical plants.
IT 64136-44-3
RL: CAT (Catalyst use); USES (Uses)
(oxidation **catalysts**, in removal of isopropanol and phenol, from waste gases from pharmaceuticals manufacture)
RN 64136-44-3 HCAPLUS
CN Chromium alloy, nonbase, Cr,Ni,Pt (9CI) (CA INDEX NAME)

Component	Component Registry Number
Cr	7440-47-3
Ni	7440-02-0
Pt	7440-06-4

CC 59-2 (Air Pollution and Industrial Hygiene)
Section cross-reference(s): 63, 67
ST waste gas treatment pharmaceutical manuf; isopropanol removal waste gas; phenol removal waste gas; oxidn catalyst waste gas treatment
IT Oxidation catalysts
(in removal of isopropanol and phenol from waste gases, from pharmaceuticals manufacture)
IT Waste gases
(removal of isopropanol and phenol from, oxidation catalysts in)
IT 1317-38-0, uses and miscellaneous 11099-27-7 11122-73-9 37334-74-0 64136-44-3
RL: CAT (Catalyst use); USES (Uses)
(oxidation catalysts, in removal of isopropanol and phenol, from waste gases from pharmaceuticals manufacture)
IT 67-63-0, uses and miscellaneous 108-95-2, uses and miscellaneous
RL: REM (Removal or disposal); PROC (Process)
(removal of, from waste gases, from pharmaceuticals manufacture, oxidation catalysts in)

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